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GAN CHOWDHURY et al.(10) **Pub. No.: US 2015/0345472 A1**(43) **Pub. Date: Dec. 3, 2015**(54) **ACTIVE AERODYNAMICS MITIGATION AND
POWER PRODUCTION SYSTEM FOR
BUILDINGS AND OTHER STRUCTURES***F03D 11/04* (2006.01)*F03D 3/00* (2006.01)(71) Applicants: **ARINDAM GAN CHOWDHURY,**
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ABSTRACT(73) Assignee: **THE FLORIDA INTERNATIONAL
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TRUSTEES,** MIAMI, FL (US)(21) Appl. No.: **14/725,055**(22) Filed: **May 29, 2015****Related U.S. Application Data**(60) Provisional application No. 62/004,434, filed on May
29, 2014.**Publication Classification**(51) **Int. Cl.***F03D 9/00* (2006.01)*F03D 3/06* (2006.01)

The current invention provides apparatuses and methods for protecting buildings/structures from wind damage and simultaneously harvesting energy from wind. The apparatuses of the current invention comprise horizontal axial wind turbines integrated to the roof-edge of the buildings/structures in an aerodynamically conducive and structurally viable configuration to reduce roof suction. The apparatuses of the current invention can further comprise aerodynamic roof gutter and structural supports/connections to alleviate wind-induced suction (negative pressures) on building roofs generated by separated flows and vortices. The apparatuses of the current invention can also comprise vertical axial wind turbines integrated to the wall-edge of the structures/buildings in an aerodynamically conducive and structurally viable configuration to reduce wind induced wall suction generated by separated flows and vortices.

